

North American Drought Monitor -- October 2007

CANADA: Overall, drought conditions improved during October, with the exception central Alberta and an area of northeastern Ontario and southwestern Quebec. With the exception of British Columbia, the rest of the country enjoyed temperatures that were 1-5 degrees Celsius (2-9 degrees Fahrenheit) warmer than normal, the warmest area being Southern Ontario. Precipitation was varied throughout the country, with some large storm systems bringing heavy rainfall to the East and West Coasts.

There was little change in drought conditions throughout the Southern Prairies and British Columbia. There continues to be a considerable area in at least a moderate drought condition throughout this region. In central Alberta poor topsoil conditions have resulted from less than 25mm (0.98 inch) of precipitation over the last two months.

Much of Ontario has seen significant improvements due to considerable rainfall over the last few months. Although parts of northern western Ontario received up to 275 mm (10.83 inches) during that time, parts of this region are still classified as an abnormally dry due to the long term water deficits. Much of southern Ontario, particularly those areas previously classified as moderate to extreme drought, received 50-125mm (1.97-4.92 inches), resulting in some slight improvements.

A region in north eastern Ontario and south western Quebec has been classified as an abnormally dry to a severe drought condition due to slightly below average precipitation throughout the growing season and below average during the fall period.

Despite some significant precipitation over much of Atlantic Canada, portions of southern New Brunswick are drier than normal because of reduced rainfall. Groundwater levels have been significantly impacted, stream flows are at less than 50% of normal, and advisories for conservation have been issued.

Acknowledgements:

We acknowledge and thank the following organizations whose reports and assessments are consulted to produce the Canadian portion of the North American Drought Monitor:

AAFC-PFRA District and Regional Offices
Alberta Environment
Alberta Agriculture, Food and Rural Development
B.C Ministry of Environment – River Forecast Centre
Environment Canada
Manitoba Hydrologic Forecast Centre
Natural Resources Canada – Canadian Forest Service
Ontario Ministry of Natural Resources – Low Water Response
Saskatchewan Agriculture, Food and Rural Revitalization
Saskatchewan Watershed Authority

UNITED STATES: October was a warm month for the eastern two-thirds of the United States, with five states (Pennsylvania, Maryland, Delaware, New Jersey, and Rhode Island) having the warmest October in the 113-year record. Temperatures averaged below-normal for the Pacific Coast states. The month was dry across the Southwest and parts of the southern Plains and Southeast, but wet conditions predominated over many areas from the central and northern Plains to the East Coast, and across parts of the Northwest. Overall drought conditions improved during October, with 50.1 percent of the contiguous United States depicting abnormally dry or drought conditions at the end of the month compared to 58.7 percent at the beginning of the month. Beneficial rain fell across parts of the Southeast, but the rain missed a large part of the core drought area. Long-term drought conditions continued across much of the Southeast and West, with patches of drought in other parts of the country.

During October, Abnormally Dry to Severe Drought (D0-D2) conditions contracted in the Northeast to Mid-Atlantic States, and along the edges of the core drought area in the Southeast. Abnormally Dry to Extreme Drought (D0-D3) conditions receded in the Pacific Northwest and northern Rockies. In the Southeast, Extreme to Exceptional Drought (D3-D4) conditions contracted a little, but record dryness continued at several time scales. Based on a 113-year record, Tennessee had the driest December-October, January-October, and February-October, and North Carolina had the driest May-October.

The persistent dryness has depleted soil moisture, ravaged pastures, and dried up streams. Soil moisture and streamflow (both modeled and observed) were most severely affected in the Southeast and West core drought areas, and also in the upper Great Lakes. In the Southeast, streams were at record or near record low levels, with some at flow levels half of the previous record low, and several deep wells, ponds, and springs have dried up. Reservoirs that supply water to major urban centers continued to drop, with some areas (such as Atlanta, Georgia and several communities in North Carolina) having as little as three months of water supply remaining. Many cities in the region have instituted mandatory water restrictions. In North Carolina, Governor Easley has said, "If we do not get significant rain, some areas face the once unthinkable possibility of water rationing and potentially running out of water entirely." Low water levels in Lake Lanier, which services Atlanta, prompted a meeting between the governors of Georgia, Alabama, and Florida, and other water managers, to modify water management practices for the water in Lake Lanier.

According to a University of Nebraska report, levels in Lake Mead (in the Southwest U.S.) continued to fall. The October 2007 Lake Mead level was at 1111.1 feet (338.7 meters), which is 15 feet (4.6 meters) lower than this time last year, the lowest October level since 1964, and the fourth lowest October level in 70 years of record. Several catastrophic wildfires burned over 500,000 acres (202,343 hectares) of land in southern California from Santa Barbara County to the U.S.-Mexican border, destroyed at least 1500 homes, and resulted in nine deaths. Extreme drought conditions of the last one to two years in southern California were interrupted by wet conditions during spring

(March-May) 2006. The wet conditions prompted growth of vegetation which became fuel for fires, and hot, dry Santa Ana winds this month provided the trigger for the fires.

MEXICO: In October, nationally-averaged rainfall was 79.3 mm (3.17 in). This represents an increase of 5 percent relative to the climatological mean (75.3mm, or 3.01 in). According to the National Meteorological Service (SMN), October 2007 ranked as the 30th wettest October based on the 1941-2006 period.

Rainfall during the month was associated with: two tropical Storms (Juliette and Kiko in the Pacific Ocean), the passage of two tropical waves, transitory low pressure systems, wide zones of atmosphere instability, and the effects of Cold Fronts number 3 and 4 which were present in the Gulf of Mexico.

The states with the most rainfall were: Tabasco 133% of normal, Chiapas 114%, Campeche 101%, Veracruz 34%, Guerrero 28% and Yucatán 20%. By contrast, those with deficit were: Baja California 98%, Sonora 95%, Coahuila 83%, Nuevo León 76%, Sinaloa 72% and Baja California Sur 71%.

Drought conditions, as described last month, remained in the northwest of Sonora and the Baja California peninsula, the latter with a slight increase to D0 in the south tip. Wildfires in the U.S.-Mexico border affected some 31300 ha (77500 acre) mainly in Tecate, Ensenada, Rosarito beach and Tijuana. These areas were mostly pasture land, shrubs and brushwood.

Areas with D0 drought grew mainly over the north and west of the country. D0 changed to D1, affecting areas of the states of Chihuahua, Sinaloa, Durango, Nayarit, Zacatecas, Jalisco and Michoacán. Some new D2 areas appeared from the south of Durango to north of Jalisco and Michoacán.

Due to the extraordinary rainfall events produced by the intense Cold Front number 4, drought conditions, which had been persistent during the last months in the south of Veracruz, east of Oaxaca, Tabasco and Chiapas, disappeared. Severe damage to agriculture was reported, including complete loss of crops of corn, beans, tuber crops, rice, cocoa, sugar cane and coconuts.

Other effects of Cold Front number 4 were the disappearance of drought conditions in most of the Yucatan peninsula (Campeche and most of Yucatán). However, the far east showed an increase to D1.

The National Water Commission (CONAGUA) reported slight increases in dam levels in the north central, northeast, central, and south of the country. By contrast, the northwest showed a decrease during October.